WHAT IS CLAIMED IS

1. ~~A method for forming a layer on a substrate disposed in a~~ processing chamber, said method comprising:

forming a nucleation layer by serially exposing said substrate to first and second reactive gases; and

forming atop of said nucleation layer, a bulk deposition layer employing vapor deposition to subject said nucleation layer to a bulk deposition of a compound contained in one of said first and second reactive gases.

2. The method as recited in claim 1 wherein forming atop of said nucleation layer includes forming said bulk deposition layer employing chemical vapor deposition.

3. The method as recited in claim 1 wherein forming atop of said nucleation layer includes forming said bulk deposition layer employing physical vapor deposition.

4. The method as recited in claim 1 wherein forming a nucleation layer further includes introducing said first and second gases therein so as to purge said processing chamber of said first reactive gas by introducing a purge gas therein, before exposing said substrate to said second reactive gas.

5. The method as recited in claim 1 wherein forming a nucleation layer further includes purging said processing chamber of said first reactive gas by pumping said processing chamber clear of all gases disposed therein before introducing said second reactive gas.

6. The method as recited in claim 1 wherein forming a nucleation layer further includes purging said processing chamber of said first reactive gas by introducing a purge gas subsequently pumping said processing chamber clear of all gases disposed therein before exposing said substrate to said second reactive gas.

7. The method as recited in claim 1 wherein forming a nucleation layer includes forming alternating layers of a boron-containing compound and a refractory metal compound onto said substrate.

8. The method as recited in claim 7 wherein the boron-containing compound is diborane B_2H_6.

9. The method as recited in claim 7 further including subject said substrate to a purge gas following formation of each of said alternating layers.

10. A method for forming a layer on a substrate, said method comprising:

serially exposing said substrate to first and second reactive gases, while said substrate is disposed in a processing chamber, to form a nucleation layer;

removing from said processing chamber said first reactive gas before exposing said substrate to said second reactive gas;

forming said layer adjacent to said nucleation layer by chemical vapor deposition while said substrate is disposed in said processing chamber by concurrently exposing said nucleation layer to said second reactive gas and a reducing agent.

11. The method of claim 10 wherein said second reactive gas includes a refractory metal and said reducing agent includes silane.

12. The method of claim 11 wherein said refractory metal is selected from the group consisting of titanium (Ti) and tungsten (W).

13. The method of claim 10 wherein removing from said processing chamber further includes introducing a purge gas into said processing chamber and pumping said first processing chamber clear of all gases present therein.

14. The method as recited in claim 10 wherein said nucleation layer has a thickness in the range of 10 to 100 Å.

15. A processing system for processing a substrate in a processing chamber, said system comprising:

means for forming a nucleation layer by serially exposing said substrate to first and second reactive gases; and

means for forming, atop of said nucleation layer, a bulk deposition layer employing vapor deposition to subject said nucleation layer to a bulk deposition of a compound contained in one of said first and second reactive gases.

16. A processing system for a substrate, said system comprising:

a body defining a processing chamber;

a holder, disposed within said processing chamber, to support said substrate;

a gas delivery system in fluid communication with said processing chamber;

a temperature control system in thermal communication with said processing chamber;

a pressure control system in fluid communication with said processing chamber;

a controller in electrical communication with said gas delivery system, said temperature control system, and said pressure control system; and

a memory in data communication with said controller, said memory comprising a computer-readable medium having a computer-readable program embodied therein, said computer-readable program including a first set of instructions for controlling said gas delivery system to form a nucleation layer by serially exposing said substrate to first and second reactive gases, and a second set of instructions to control said gas delivery system to form, top of said nucleation layer, a bulk deposition layer by subjecting said nucleation layer to vapor deposition of a compound contained in one of said first and second reactive gases.

17. The processing system as recited in claim 16 wherein said computer-readable program includes an additional set of instructions to purge said processing chamber of said reactive gas before introducing said second reactive gas by introducing a purge gas therein.

18. The processing system as recited in claim 16 wherein said computer-readable program includes an additional set of instructions to purge said processing chamber of said first reactive gas before introducing said second reactive gas by pumping said first processing chamber clear of all gases disposed therein.

19. The processing system as recited in claim 16 wherein said first reactive gas includes a boron compound and said second reactive gas includes a refractory metal

compound with said refractory metal compound being from the group consisting of titanium and tungsten and said purge gas being from the group consisting of nitrogen, hydrogen and argon.

20. The processing system as recited in claim 16 wherein said computer-readable program includes an additional set of instructions to purge said processing chamber of said first reactive gas before introducing said second reactive gas by introducing a purge gas therein and subsequently pumping said first processing chamber clear of all gases disposed therein.